toms other than a sense of pressure in throat. Basal metabolism plus 4.

Case 11—Figure 16. Mrs. W. H. Age 44. Goiter for 15 years. No symptoms referrable to the thyroid. Basal metabolism minus 3.

In arriving at a conclusion regarding the diagnosis of hyperthyroidism, from a resume of my fifty cases, and because this condition frequently presents diagnostic difficulties, I am of the opinion even though the gland be diseased, neither the pathology nor the symptomatology are constant. With the patient under close observation changes in the symptomatology may be noted. Such changes probably are due to an altered physiological action of the hypertrophic cells without any demonstrable histologic change. Therefore, the logical conclusion appears to be that a more accurate diagnosis of hyperthyroidism can be made from the clinical symptoms than the pathological study of the gland.

PHYSIOTHERAPY RECORDS

By MISS HAZEL E. FURSCOTT
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The written physiotherapy record divides itself into two main parts: The physician's orders to the physiotherapist; the report of the patient's progress under physiotherapy to the physician.

The reference of the patient by the physician to the physiotherapy department necessitates a blank form. This form should contain at least the following information: 1, Institutional information; 2, complete diagnosis; 3, prescription for physiotherapy; 4, the physician's signature.

Institutional information includes name, address and attendance. The patient's age and occupation are important, the one to guide us in the prognosis, the other in guiding the patient toward his return to work.

In spite of some contrary opinions, I am firmly convinced that the well-trained ethical physiotherapist should know the complete diagnosis of the patient she is treating. In industrial cases the diagnosis should include details such as the date of injury, the condition of injury, and the character of union in case of fracture. Operative procedures, X-ray findings should be known. The prescription should note when the splint or dressings may or may not be removed, and whether or not movement is contra-indicated. It is very important for the physiotherapist to know what not to do.

I recall a prescription filled out by some one else for the physician. Diagnosis was not given, and the prescription called for hot packs, massage, and active movements. After two days of treatment we were dissatisfied with the progress of the patient and telephoned the physician, when we were informed that an arthroplastic operation had been performed, and there was to be absolutely no adduction at the hip.

The prescription should specify the physiotherapeutic agents to be used, and in all respects the prescription should be written with the same care used in writing a prescription of medicine. The excuse that some physicians are unfamiliar with the methods of physiotherapy and so leave the prescription to the physiotherapist, is not a valid one. The physician learns how to prescribe medicine, although he does not actually compound it, and likewise he need not know the technical procedures of physiotherapy to intelligently prescribe it. Physicians not infrequently ask the advice of the pharmacist before writing a prescription for medicine. Similar methods in prescribing physiotherapy would lead to an improvement of the present situation.

Many records of patients receiving physiotherapy treatment became of value in settling insurance claims, hence the importance of signatures by the physician to his prescription and by the physiotherapist who gives the treatments.

THE RECORD OF PROGRESS

The physiotherapy record should be a record of progress. If physiotherapy procedures are continued through convalescence, they should show in detail the history of the patient's improvement.

The record should be taken at least once a week by uniform methods, so that there will be at least comparative accuracy at each re-examination. Moreover, the record should not only be intelligible to the physician, the insurance company and the physiotherapist, but to the patient as well. The physiotherapy record and methods of measurement can not and need not conform exactly with the methods in use by permanent rating bureaus of insurance companies, or even those in the physician's office. The permanent rating bureau measures the patient but once, and so is not interested in the minute gains and losses from week to week which it is the function of the physiotherapy record to follow. Moreover, the physiotherapy record is taken when the patient is warm and so does not serve as a permanent record of disability. Figures, degrees of motion, are also not easily intelligible to the patient. The value of the psychological effect of the tangible evidence of progress to the injured patient is very great and for that reason methods of measurement should be graphic as far as possible. They can be made very simple and uniform without the use of intricate machinery. They should be made so that one measurement may be easily superimposed upon another to show comparative progress.

The factors to be recorded are: (1) the range of motion; (2) strength; (3) swelling; (4) pain and its location; (5) muscle spasm; (6) skin condition; (7) wound condition; (8) abnormal joint range, and (9) attitude of the patient.

The factors of swelling, pain, muscle spasm, skin and wound conditions, abnormal joint range and attitude of the patient are often not noted because they are not measurable. These conditions should be recorded routinely at the time of the patient's visit and changes should be noted at least once a week.

The other factors, range of motion, strength and swelling are measurable. Range of motion may be taken by means of a protractor and recorded as degrees or graphically by means of lead tape.

The following outlines indicate the technique of these methods: (1) By means of the protractor, and (2) by means of lead tape.

Protractor Measurements for the Measuring of Range of Motion in Joints

Note (1) Number of degrees express the range of motion from the zero or neutral position to the extreme active movement being measured. Example: Mid position between pronation and supination is 0 degrees with a possible 90 degrees in both supination and pronation.

(2) The normal or uninjured corresponding joint may be measured for comparison with the injured joint and so the percentage of loss of movement may be determined. Example:

——— Dorsal flexion of uninjured wrist 85°
——— Dorsal flexion of injured wrist 35°

The patient has 35/85 of dorsal flexion in his wrist.

Joint	Movement	Position of part to be measured	Instrument used
Distal phalangeal	flexion	Distal joints flexed—metacarpal phalangeal joint extended	Starrett protractor No. 19
Middle phalangeal	flexion	Closed fist (as nearly closed as possible)	Starrett protractor No. 19
Metacarpal phalangeal	flexion	Closed fist (as nearly closed as possible)	Starrett protractor No. 19
Wrist	dorsal flexion	*Neutral position between dorsal and Palmer flexion, protractor over center of dorsum of the wrist	long-armed protractor
Wrist	Palmer flexion	One arm along extensor surface of forearm; other arm over second metacarpal	long-armed protractor
Wrist	radial flexion	*Mid position—protractor flat—one arm placed along extensor surface of forearm	long-armed protractor
Wrist	ulnar flexion	Joint of protractor at center of wrist and other arm over dorsum of second metacarpal	long-armed protractor
Forearm	supination	*Mid position, elbow pressed close in	protractor parallel to plane of movement
Forearm	pronation	Hand grasps handle of protractor	protractor parallel to plane of movement
Elbow	flexion	Arm in complete flexion	long-armed protractor
Elbow	extension	Arm in complete extension	long-armed protractor
Shoulder	abduction	*Arm hanging at side, protractor joint at center of joint	long-armed protractor
Shoulder	flexion	*Arm hanging at side	long-armed protractor
Ankle	dorsal flexion	Foot in complete flexion	long-armed protractor
Ankle	planter flexion	Foot in complete extension	long-armed protractor
Knee	flexion	Knee flexed	long-armed protractor
Knee	extension	Knee extended	long-armed protractor
Hip	flexion	Hip flexed	long-armed protractor
Hip	abduction	*Hip abducted, using mid position as zero	long-armed protractor

Movements not measured: Thumb apposition; shoulder rotations; inversion of the foot.

This system of protractor measurements is largely an adaptation of that in use by the Industrial Accident Commission of the State of California.

Lead Tape Measurements

To show joint range graphically

Voluntary motion.....red pencil
Forced motion.....blue pencil

* The zero or mid position is starting point.

Normal motion (the uninjured corresponding joint).....
.....
For larger joints use lead tape—gauge number.....
1/8 inch.
For fingers use lead tape— gauge number.....
1/16 inch.

Notes for standardization.....

Mark <—— at angle on the lead tape, carefully placing it at the angle of the joint and recording the angle on the tracing so that the succeeding tracing may be superimposed.

Place lead tape:

1 over the center of the dorsum of the finger joints for finger flexion and extension;
2 moulded between the thumb and index finger for thumb abduction;
3 over the center of the dorsum of the wrist for flexion and extension;
4 along the ulnar border of the hand in extension for radial and ulnar flexion;
5 along the outer side of the forearm and upper arm with the olecranon as the angle for elbow flexion and extension;
6 along the axillary border for shoulder abduction (patient in supine position);
7 along the center of the dorsum of the ankle for dorsal and planter flexion;
8 over the midline of the top of the patella for knee flexion and extension.

Protractor measurements are more practical for pronation and supination of the forearm and abduction and adduction, flexion and extension of the hip and extension of the shoulder.

Both the protractor measurements and lead tape measurements have many limitations. In both there is a great chance for inaccuracy and for the personal equation to enter into making the record. However, they are not to be discarded as they serve to make a record of comparative progress which is, after all, the purpose of the physiotherapy record.

The advantages of the protractor system of measurement are:

(1) They are more easily reported to the doctor and the insurance company; (2) they are more concise for filing purposes; (3) such measurements as supination and pronation are possible; (4) statistics are more easily compiled.

The advantages of the lead tape system are: (1) They are more easily superimposed upon one another from time to time; (2) minute gains and losses are more easily determined; (3) there is no chance to misread results, confusing range of motion with the angle that the joint assumes: (4) it graphically presents to the patient a picture of his progress from time to time.

Keeping in mind that the physiotherapy record is to be one of progress, a practical system of measuring range of motion is to combine the two systems, using the best features of each.

In the physiotherapy department of Hahnemann Hospital we have found this combination practical. Lead tapes are used for all joint measurements where possible, because of the graphic value, and the protractor method is used for supination and pronation.

The following chart represents abduction of the thumb: (1) Graphically, by means of lead tape; (2) by means of protractor.

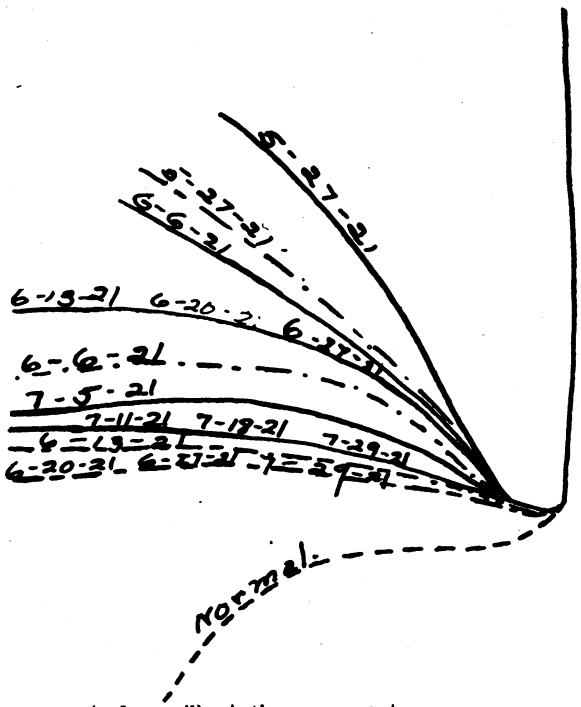
Protractor Measurements

Abduction of Right Thumb

	5–27–21	6–6–21	6–13–21	6–20–21	6–27–21
Voluntary...	30/100	50/100	60/100	60/100	68/100
Forced.....	45/100	68/100	85/100	90/100	90/100
		7–5–21	7–11–21	7–25–21	7–29–21
Voluntary.....		80/100	80/100	80/100	80/100
Forced.....		90/100	90/100	90/100	90/100

The same measurements—Graphically recorded by lead tape.

Red = voluntary motion.
Blue = forced motion.
— — — = abduction of left (normal) thumb.



——— (red pencil)—Active movement
—. —. (blue pencil)—Forced movement
- - - - (dotted line)—Normal (abduction uninjured thumb)

The other measurable factors are those of strength and swelling. Here again the elements of simplicity and uniformity must be kept in mind. The elaborate and very expensive machines on the market for measuring strength are undesirable, for in spite of careful technique it is almost impossible to localize movement to one muscle or group of muscles. Of these machines the only one of practical value is the small dynamometer for measuring hand grip.

Recognizing a very definite relation between muscle atrophy and loss of muscle function, we may determine the relative loss of muscle function by determining the circumferential measurements of the injured member and comparing them with those of the uninjured member. A record kept from time to time will show progress in muscle strength. Likewise swelling may be measured and progress noted.

The routine of circumferential measurements is included in the following chart.

For Any Hand, Arm or Shoulder Injury:

Measurement	Instrument	Place of tapeline	Remarks
Metacarpal-phalangeal joint	tapeline	around metacarpal-phalangeal joint	
Wrist	tapeline	over the styloid prominences	
Forearm	tapeline	4 inches below tip of olecranon	elbow bent
Elbow	tapeline	tip of the olecranon	as complete extension as the joint will allow
Upper arm	tapeline	4 inches above tip of the olecranon	elbow bent
Deltoid (1)	tapeline	axilla	arm hanging at side
*(2)	tapeline	axilla	arm at right angle in abduction

* For arm not to be removed from an abduction splint.

For Any Foot and Lower or Upper Leg or Hip Injury:

Measurement	Instrument	Place of tapeline	Remarks
Metacarpal-phalangeal joint	tapeline	around metacarpal-phalangeal joint	
Ankle	tapeline	around tip of malleoli	
Lower leg (calf group)	tapeline	8 inches below top of the patella	leg in extension
Knee	tapeline	mid patella	leg in extension
Thigh	tapeline	8 inches above the top of the patella	leg in extension

For all measurements pull tape as tight as possible. Use steel tapeline as fabric tapes stretch.

The measurements 4 inches above and below the olecranon and 8 inches above and below the top of the patella are for the average man.

Strength of the forearm muscles may be taken by means of the hand dynamometer.

Muscle Measurements

(Circumferential)

Circumferential measurements indicate swelling and atrophy, and indirectly strength.

After any injury the routine should include circumferential measurements to all joints and muscles of that part injured and also to those parts where atrophy of disuse might occur.

These measurements should be taken
(a) around the joint to show swelling;
(b) around the belly of the muscle;
(1) to show swelling;
(2) to show atrophies.

I have pointed out that records should be of use to science, to the physician, to the physiotherapist, to the insurance company and to the patient. The greatest use should be to medical science. The physiotherapy record is pregnant with data that if collected and tabulated should be a valuable contribution to the science of medicine. The physiotherapy clinic is a human laboratory that is not repeated elsewhere, and through uniform records numerous problems may be solved.

The great need of physiotherapy is a more scientific background and definite correlated data instead of the collection of scattered truths with which we now work. The physiotherapist who does not record her results fails in her duty to her profession and to the science of medicine for she has missed the opportunity of adding material to the outstanding need—that of systematically organized data to place physiotherapy on a sound scientific basis.

Should Physicians Delegate All Social Work—The young doctors do not nowadays follow the sick poor of our hospitals to their homes. The social service workers do this and the human aspects of the problems of disease are today more commonly touched by the educated nurse than by medicine's new generation. But if these things be so, is it any wonder that the sum total of patients which constitutes our public is becoming increasingly deaf to suggestions which spring from the medical profession and increasingly responsive to those emanating from social uplifters or economic and political reformers?—Martin H. Fischer, M. D., The American Medical Press, January, 1923.

Theories Like Furnished Houses—Theories commonly go in sets like chamber furniture, and you will find a mind furnished throughout, physiologically, philosophically, morally, theologically, in the same shade of color, and with the same general pattern prevailing through all its articles of belief.—Oliver Wendell Holmes.